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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/724,101

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Tadahiro Ohmi

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GRIFFIN & SZIPL, PC

SUITE PH-1

2300 NINTH STREET, SOUTH

ARLINGTON, VA 22204

EXAMINER

LEUNG, JENNIFER A

ART UNIT

PAPER NUMBER

1764

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DELIVERY MODE

05/10/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/724,101	Applicant(s) OHMI ET AL.	
	Examiner Jennifer A. Leung	Art Unit 1764	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 February 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 7,9,11,13,15,17,19 and 21-27 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 7,9,11,13,15,17,19 and 21-27 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☒ Certified copies of the priority documents have been received in Application No. 09/773,605.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Jennifer A. Leung
May 8, 2007

Attachment(s)

- | | |
|----------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>1-25-07</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

1. Applicant's amendment submitted on February 28, 2007 has been received and carefully considered. Claims 1-6, 8, 10, 12, 14, 16 and 18 are cancelled. Claims 21-27 are newly added. Claims 7, 9, 11, 13, 15, 17, 19 and 21-27 are under consideration.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. Claims 7, 9, 11, 13, 15, 17 and 19 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Regarding claim 7, it is unclear as to where the limitation of, "a notch... having a width of approximately the same diameter as the through hole," (lines 22-24), is disclosed in the specification and drawings. As seen in FIG. 9, the claimed notch is element **20** and the claimed through hole is element **19**. The notch and through hole of the fin base plate are also shown, but not labeled, in FIG. 11. As seen in the figures, the width of notch **20** is significantly smaller than the diameter of through hole **19**. Furthermore, the Examiner is unaware of any location within the specification where the dimensions of the notch **20** width relative to the through hole **19** diameter are disclosed.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

3. Claims 7 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ohmi et al. (EP 0 922 667) in view of Hishikari et al. (JP 63-138220) and Matsunaga et al. (US 5,375,652).

Ohmi et al. (FIGs. 8-10; sections [0035] to [0054]) discloses a reactor **1** for generating moisture, having an inlet side and an outlet side, comprising:

a first reactor structural component **2** on the inlet side of the reactor **1** having an outside wall, and a second reactor structural component **3** on the outlet side of the reactor **1** having an outside wall, wherein the first and second components **2,3** are mated for form a reactor shell having an interior space **1a**; (see figures);

a material gas supply passage **2c** provided in the first reactor structural component **2** disposed to supply material gases into the interior space **1a**; and a material gas supply joint **4**

connected to the material gas supply passage **2c**; (see figures); and

a moisture gas outlet passage **3c** provided in the second reactor structural component **3** to lead out moisture from the interior space **1a**; and a moisture gas take-out joint **5** connected to the moisture gas outlet passage **3c**; (see figures).

Ohmi et al. (section [0038]) further discloses,

“Reactor **1** is provided with *a heater* and, as necessary, *a cooling unit* so that if the reaction heat pushes up the temperature in the reactor in operation to over 500 °C (which rarely happens, though), the cooling unit will be activated to bring the temperature down below 500 °C.”

Ohmi et al. is silent as to a cooling unit comprising fin base plates attached to the outside walls of the first and second components **2,3** and a plurality of fins disposed on the fin base plates. Ohmi et al. is further silent as to a heater being disposed on the outside wall of the second component **3**, including a heater pressing plate disposed on an outside of the heater, wherein the fin base plate is attached to an outside of the heater pressing plate.

Hishikari (Figure; Abstract) teaches an apparatus comprising a heater **4** and a cooling unit for controlling the temperature of a chamber **1**. The cooling unit comprises a fin base plate (i.e., not separately labeled; the portion of fins **7** adjacent to holding element **6**) and a plurality of fins **7** disposed on the fin base plate. The heater **4** is disposed on the outside wall of the chamber **1**, with a heater pressing plate (i.e., electronic cooling element **5**) disposed on the outside of the heater **4**, and the fin base plate/fins **7** attached on the outside of the heater pressing plate **5**.

It would have been obvious for one of ordinary skill in the art at the time the invention was made to substitute the heater and cooling unit of Hishikari et al. for the heater and cooling unit in the apparatus of Ohmi et al., on the basis of suitability for the intended use and absent

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showing any unexpected results thereof, because the substitution of known equivalent structures for providing the same function of heating and cooling involves only ordinary skill in the art. *In re Fout* 213 USPQ 532 (CCPA 1982); *In re Susi* 169 USPQ 423 (CCPA 1971); *In re Siebentritt* 152 USPQ 618 (CCPA 1967); *In re Ruff* 118 USPQ 343 (CCPA 1958). It would have also been obvious for one of ordinary skill in the art at the time the invention was made to provide the heater and cooling unit of Hishikari et al. on both the outside walls of the first and the second component 2, 3 in the apparatus of Ohmi et al., on the basis of suitability for the intended use and absent showing any unexpected results thereof, because the duplication of parts for added effect was held to have been obvious. *St. Regis Paper Co. v. Beemis Co. Inc.* 193 USPQ 8, 11 (1977); *In re Harza* 124 USPQ 378 (CCPA 1960).

The collective teaching of Ohmi et al. and Hishikari, however, is silent as to whether the fin base plates comprise through holes for the corresponding joint, and a notch connected with the through hole and having a width that is smaller than or approximately the same as the diameter of the through hole.

Matsunaga et al. (see, e.g., FIG. 3A; column 3, line 32 to column 4, line 9) teaches a plate (i.e., fixing spring hardware 2) used for securing heat radiating fins to a semiconductor device, wherein the plate 2 comprising a through hole for receiving a circular stud and a notch connected to the through hole (i.e., collectively defining the cut out 2h), wherein the width of the notch is approximately the same as the diameter of the through hole. Matsunaga et al. further teaches another embodiment (see, e.g., FIGs. 6, 8; column 4, line 59 to column 6, line 24) wherein the plate (i.e., fixing spring hardware 12, 22) comprises a through hole 12ab, 22ab for a receiving a circular stud and a notch (i.e., straight intermediate portion 12ac, 22ac) connected with the

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through hole, the notch **12ac**, **22ac** having a width **W** that is smaller than the diameter **V** of the through hole **12ab**, **22ab**.

It would have been an obvious design choice for one of ordinary skill in the art at the time the invention was made to configure the fin base plates in the modified apparatus of Ohmi et al. to comprise a through hole for the corresponding joint, and a notch connected with the through hole and having a width that is smaller than or approximately the same as the diameter of the through hole, on the basis of suitability for the intended use thereof, because the claimed through hole and notch configurations would allow for the fin base plate to be attached to the reactor shell by simply sliding the plate against the corresponding joint.

4. Claims 9, 11, 13, 15, 17, 22, 23 and 25-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ohmi et al. (EP 0 922 667) in view of Hishikari et al. (JP 63-138220) and Matsunaga et al. (US 5,375,652), as applied to claims 7 and 21 above, and further in view of Nelson et al. (US 3,180,404).

Regarding claims 9, 11, 22 and 23, the collective teaching of Ohmi et al., Hishikari et al. and Matsunaga et al. is silent as to the heat dissipation fins being disposed symmetrically about the material gas supply joint **4** and the moisture gas take-out joint **5**. Nelson et al. (FIG. 1-4; column 1, line 70 to column 2, line 23) teaches a plurality of parallel, spaced heat dissipation fins **22** being disposed symmetrically about a central location (i.e., at opening **24**) located on the fin base plate **21**. It would have been obvious for one of ordinary skill in the art at the time the invention was made to dispose the heat dissipation fins symmetrically about the material gas supply joint **4** and the moisture gas take-out joint **5** in the modified apparatus of Ohmi et al., on the basis of suitability for the intended use and absent showing any unexpected results thereof,

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because disposing the fins according to such a configuration provides for an even distribution of heat and for an equal heat transfer effect irrespective of the direction of coolant flow from end to end of the finned structure, as taught by Nelson, et al. (column 2, lines 13-23).

Regarding claims 13, 15, 25 and 26, the collective teaching of Ohmi et al., Hishikari et al. and Matsunaga et al. is silent as to the fins being disposed axially symmetrical about the material gas supply joint 4 and the moisture take-out joint 5. Nelson et al. (FIG. 1-4; column 1, line 70 to column 2, line 23) teaches a plurality of parallel, spaced heat dissipation fins 22 being disposed axially symmetrically about a central location (i.e., at opening 24) located on the fin base plate 21. It would have been obvious for one of ordinary skill in the art at the time the invention was made to dispose the fins axially symmetrical about the material gas supply joint 4 and the moisture gas take-out joint 5 in the modified apparatus of Ohmi et al., on the basis of suitability for the intended use and absent showing any unexpected results thereof, because disposing the fins according to such a configuration provides for an even distribution of heat and for an equal heat transfer effect irrespective of the direction of coolant flow from end to end of the finned structure, as taught by Nelson, et al. (column 2, lines 13-23).

Regarding claim 17 and 27, the collective teaching of Ohmi et al., Hishikari et al. and Matsunaga et al. is silent as to the fins being disposed centrally symmetrical about the moisture take-out joint 5. Nelson et al. (FIG. 1-4; column 1, line 70 to column 2, line 23) teaches a plurality of parallel, spaced heat dissipation fins 22 being disposed centrally symmetrically about a central location (i.e., at opening 24) located on the fin base plate 21. It would have been obvious for one of ordinary skill in the art at the time the invention was made to dispose the fins centrally symmetrical about the moisture take-out joint 5 in the modified apparatus of Ohmi et

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al., on the basis of suitability for the intended use and absent showing any unexpected results thereof, because disposing the fins according to such a configuration provides for an even distribution of heat and for an equal heat transfer effect irrespective of the direction of coolant flow from end to end of the finned structure, as taught by Nelson, et al. (column 2, lines 13-23).

5. Claims 19 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ohmi et al. (EP 0 922 667) in view of Hishikari et al. (JP 63-138220) and Matsunaga et al. (US 5,375,652), as applied to claims 7 and 21 above, and further in view of Asanuma et al. (US 4,369,838).

The collective teaching of Ohmi et al., Hishikari et al. and Matsunaga et al. is silent as to the heat dissipation fins comprising surfaces treated with alumite.

Asanuma et al. teaches heat dissipation fins comprising surfaces treated with alumite (i.e., by subjecting the fins to a sulfuric acid alumite-black dying treatment; column 5, lines 5-45).

It would have been obvious for one of ordinary skill in the art at the time the invention was made to treat the surfaces of the heat dissipation fins with alumite in the modified apparatus of Ohmi et al., on the basis of suitability for the intended use, because subjecting the surfaces of the fins to a sulfuric acid alumite-black dying treatment improves the heat releasing efficiency of the fins, in comparison to uncolored fins, as taught by Asanuma et al.

Response to Arguments

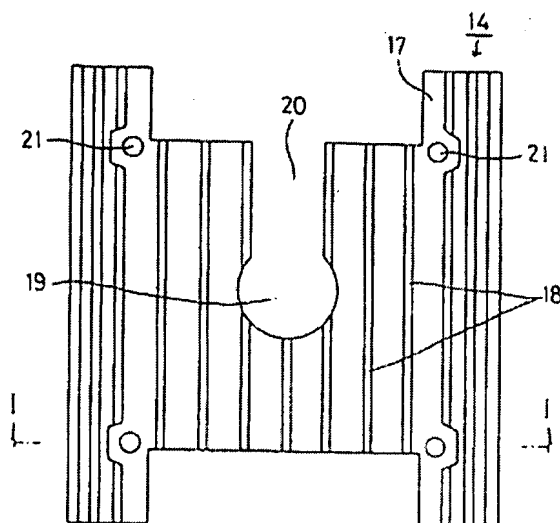
6. Applicant's arguments filed February 28, 2007 with respect to the rejection of claims 7, 9, 11, 13, 15, 17 and 19 under 35 U.S.C. 112, first paragraph, have been fully considered but they are not persuasive. Applicants (beginning on page 6, in the last paragraph) argue,

“...notch 20, as depicted in FIG. 9 and FIG. 11 is approximately the same diameter as the through hole regardless of whether it is depicted as 1/4 to 1/3 smaller since the claim requires only an approximation and given the size of the reactor unit as a whole compared to the notch and through hole, the notch and through hole are approximately the same diameter. The present case is clearly on all fours with Vas-Cath cited above, and that case requires withdrawal of the rejection under § 112.

Moreover, the specification discusses the placement of the through hole 19 and notch 20 on page 13, lines 1-5. It is described, "In the center [of the unit], there is provided a through hole 19 for the joint. A cut 20 is made that extends from the through hole 19 for the joint to the upper side of the fin base plate 17." The specification describes the cut 20, or notch, and the through hole as allowing "central symmetry." In combination with FIG. 9, one of ordinary skill in the art would understand that the notch 20 and through hole 19 were contemplated by the inventor to be approximately the same diameter, both located in the center of the unit.

The Examiner respectfully disagrees and maintains that the limitation of, “a notch connected with the through hole and having a width of approximately the same diameter as the through hole” is not supported in the originally filed disclosure. The relative dimensions of the notch 20 relative to the through hole 19 are not discussed in any portion of the specification. In addition, the Examiner maintains that one having ordinary skill in the art, when looking at Applicant’s FIG. 9, would not have considered the width of notch 20 to be of “approximately the same” as the diameter of the through hole 19, given the proportioning of the elements 19 and 20 as illustrated in the figure (copied below).

FIG. 9



For example, if the width of the notch and diameter of the through hole were “approximately the same”, one having ordinary skill in the art would have expected the illustration to appear similar to plate 2 in FIG. 3(A) of Matsunaga et al., wherein a notch having a width that is approximately the same as the diameter of the through hole is shown as the cut out portion 2h. In contrast, Applicant’s illustration resembles that of FIGs. 6 and 8 of Matsunaga et al., wherein the width W of the notch is smaller than the diameter V of the through hole.

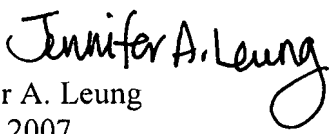
Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jennifer A. Leung whose telephone number is (571) 272-1449. The examiner can normally be reached on 9:30 am - 5:30 pm Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner’s supervisor, Glenn A. Caldarola can be reached on (571) 272-1444. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.


Jennifer A. Leung
May 8, 2007